FAIL-SAFE®

DESCRIPTION

The Fail-Safe CFF Series is designed for use in horizontal or non-laminar air flow clean rooms. The enclosed and gasketed housing and one-piece, outside flanged door protect against infiltration of airborne bacteria. The die formed edges on the door frame and the hole-free design of the housing prevent air exchange between the fixture and plenum, allowing relamping without contamination of the clean areas. These luminaires are U.L. listed and C.S.A. certified for wet locations and are manufactured in accordance with U.S.D.A., F.D.A., N.S.F. and Federal Standard 209E. 200 PSI Hose Down Rating standard.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Application
The CFF Series is suitable for use in I.E.S. Class 100, 1,000, 10,000 and 100,000 clean room environments. Applications include clean rooms, technical and biomedical labs, food processing/testing centers and pharmaceutical labs.

A ... Lens
Lens is clear extruded with prisms positioned inside fixture and smooth surface on the outside for easy cleaning.

B ... Fasteners
Flush mounted, stainless steel machine screws secure through captive cage nuts in housing and are evenly spaced to compress gasketing on all sides.

C ... Housing
Die-formed, 20 ga. CRS with tightly butted and seam welded, sealed end caps. Contains no holes that would allow air passage. Standard white high reflectance polyester powder coat finish. Gloss: 85%; Reflectance: 93%; Hardness: 2H; Salt Spray: 500 Hours.

D ... Lamps
(By Others)

E ... Lens Retention
Unique, Particulock(TM) lens retention system utilizes continuous, 18 ga. media clampdowns to sandwich gasketing and integrate lens and door frame for even environmental seal.

F ... Hinge
Two braided, stainless steel cables on one side of door provide hinging.

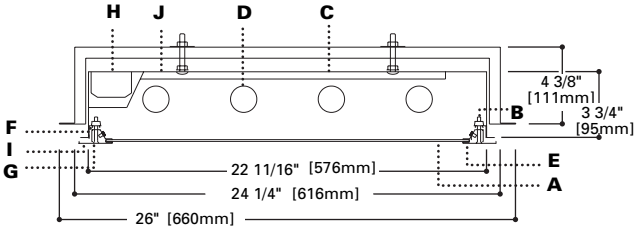
G ... Door
One piece, 18 ga. door with baked white polyester powder coat, fully gasketed, outside door with die-formed edges eliminates seams which could entrap microscopic contaminants. Optional doors available.

H ... Ballast
Standard Class P, CBM/ETL ballast.

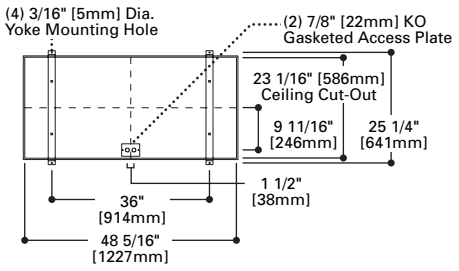
I ... Gasket
White, closed cell, Flexiseal(TM) gasketing surrounds perimeter of lens to seal lens to door frame and around perimeter of door to seal door to housing. Another layer seals fixture to ceiling system after installation.

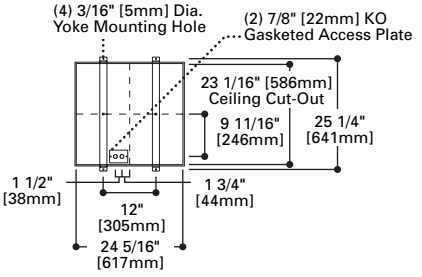
J ... Access
A gasketed access plate on top of the housing with two flattened, 7/8" diameter knockouts allows connection of vapor tight conduit fitting. Optional, above ceiling, top access door for luminaire maintenance is available and ideal for food processing and cleanroom applications.

Labels
U.L. listed, C.S.A. certified, standard wet label.

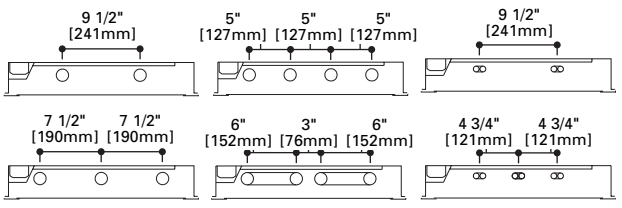


MOUNTING DIMENSIONS


(4) 3/16" [5mm] Dia. Yoke Mounting Hole
(2) 7/8" [22mm] KO Gasketed Access Plate
23 1/16" [586mm] Ceiling Cut-Out
9 11/16" [246mm]
25 1/4" [641mm]
1 1/2" [38mm]
36" [914mm]
48 5/16" [1227mm]

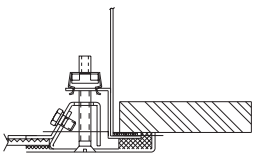

(4) 3/16" [5mm] Dia. Yoke Mounting Hole
(2) 7/8" [22mm] KO Gasketed Access Plate
23 1/16" [586mm] Ceiling Cut-Out
9 11/16" [246mm]
25 1/4" [641mm]
1 1/2" [38mm]
1 3/4" [44mm]
12" [305mm]
24 5/16" [617mm]

LAMP CONFIGURATIONS



DOOR FRAME

Flange Type-One-piece Door



CFF

34W - 160W
Fluorescent

2' X 2'
2' X 4'
FLUORESCENT FLANGE
One-Piece Door

ENERGY DATA

Input Watts:

STD Ballasts & STD Lamps
(2) 20W T12 Fluorescents: 53W
(3) 20W T12 Fluorescents: 85W
(4) 20W T12 Fluorescents: 106W
(2) 40W Biaxial Fluorescents: 82W
(3) 40W Biaxial Fluorescents: 127W

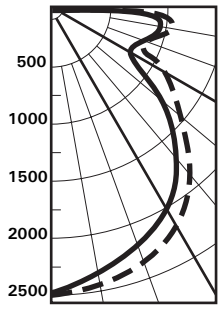
ES Ballasts & STD Lamps
(2) 17W T8 Fluorescents: 45W
(3) 17W T8 Fluorescents: 68W
(4) 17W T8 Fluorescents: 90W
(2) 32W T8 Fluorescents: 71W
(3) 32W T8 Fluorescents: 108W
(4) 32W T8 Fluorescents: 142W
(2) 40W T12 Fluorescents: 86W
(3) 40W T12 Fluorescents: 136W
(4) 40W T12 Fluorescents: 172W
(2) 40W U-Lamps: 86W

ES Ballasts & ES Lamps
(2) 40W T12 Fluorescents: 76W
(3) 40W T12 Fluorescents: 120W
(4) 40W T12 Fluorescents: 152W
(2) 40W U-Lamps: 76W

Electronic Ballast Data
Consult Cooper Lighting Representative.

PHOTOMETRICS

Candlepower Distribution



Test No. ITL36036
CFF-24-440-IK12
Lamp=(4) 40WT12
Lumens=8526
Spacing Criteria
⊥=1.4 ||=1.2
Efficiency=67.7%

⊥
||

Average Luminance

Deg.	⊥	||
45	1595	1323
55	1154	980
65	822	779
75	871	857
85	1018	933

Zonal Lumen Summary

Zone	Lumens	%Lamp	%Luminaire
0-30	2728	21.7	32.0
0-40	4499	35.7	52.8
0-60	7316	58.1	85.8
0-90	8526	67.7	100.0
90-180	0	0.0	0.0
0-180	8526	67.7	100.0

Coefficient of Utilization

rc	80%				70%			50%		30%		10%		0%
rw	70	50	30	10	50	30	10	50	10	50	10	50	10	0
RCR														
0	81	81	81	81	79	79	79	75	75	72	72	69	69	68
1	75	72	69	67	70	68	66	67	64	65	62	62	60	59
2	69	64	60	57	63	59	56	61	55	58	54	56	52	51
3	64	58	53	49	57	52	48	55	48	53	47	51	46	45
4	59	52	46	42	51	46	42	49	42	48	41	46	40	39
5	54	46	41	37	46	40	36	44	36	43	36	42	35	34
6	50	42	36	32	41	36	32	40	32	39	31	38	31	30
7	46	38	32	28	37	32	28	36	28	35	28	34	28	26
8	43	34	28	25	33	28	24	33	24	32	24	31	24	23
9	39	30	25	21	30	25	21	29	21	29	21	28	21	20
10	37	28	22	19	27	22	19	27	19	26	19	25	19	17

rc = Ceiling reflectance, rw = Wall reflectance, RCR = Room cavity ratio

CU Data Based on 20% Effective Floor Cavity Reflectance.

ORDERING INFORMATION

SAMPLE NUMBER: CFF-24-340-277-IK12-LE3-GLR

Product Family	Width	Lamp Type	Voltage	Lens Type	Ballast	Door/Finish Options	Options
CFF	**24**						

CFF=Fluorescent Flange Type

24=24"

2' Fixture Length
T8 Fluorescents
217=(2) 17W Lamps
317=(3) 17W Lamps
417=(4) 17W Lamps

T12 Fluorescents
220=(2) 20W Lamps
320=(3) 20W Lamps
420=(4) 20W Lamps

U Lamps
2U 1 5/8=(2)31WT8 Lamps
3U 1 5/8=(3) 31WT8 Lamps
2U6T8=(2) 32WT8 Lamps
2U6=(2)40WT12Lamps

Biaxial Fluorescents
240BX=(2) 40W Lamps
340BX=(3) 40W Lamps

4' Fixture Length
T8 Fluorescents
232=(2) 32W Lamps
332=(3) 32W Lamps
432=(4) 32W Lamps

T12 Fluorescents
240=(2) 40W Lamps
340=(3) 40W Lamps
440=(4) 40W Lamps

120=120V
277=277V

IK12=K-12 Prismatic Acrylic
IP12=K-12 Prismatic Polycarbonate
KSH25[1]=Bat Wing Distribution
93=Prismatic Tempered Glass

LE3=Energy Saving Ballast for use with T12 Lamp

Electronic Ballast[2]
EB81=(1) Ballast for use with T8 Lamp
EB82=(2) Ballasts for use with T8 Lamp
EB21=(1) Ballast for use with T12 Lamp
EB22=(2) Ballasts for use with T12Lamp
EBX1=(1) Ballast for use with Biaxial Lamp
EBX2=(2) Ballasts for use with Biaxial Lamp

Blank=Standard, CRS with baked white finish
SSN=Stainless Steel Door/ Brushed 304 Finish
SSP=Stainless Steel Door/ Polyester Powder Coat Finish
ALP=Aluminum Door/ Polyester Powder Finish
ALX=Extruded Aluminum Door/Clear Anodized Finish [3]
ALXP= Extruded Aluminum Door/Polyester Powder Finish [3]

EBP=Emergency Battery Pack
GLR=Fuse and Holder
RIF=Radio Frequency Interference Filter
TAD=Top Access Door[4]

Housing Options
SHN= Stainless Steel, Brushed 304 Finish
SHP=Stainless Steel, Polyester Powder Finish

ALH=Aluminum, Polyester Powder Finish

Accessories (order separately)

MFCF24-2FT=Mounting Frame (not required for installation)
MFCF24-4FT=Mounting Frame (not required for installation)

Notes:
For additional options please consult Cooper Lighting Representative. Specifications and Dimensions subject to change without notice. Electronic ballast may cause interference with other electronic devices. If interference occurs, move the device away from the product or plug/connect into a different circuit/outlet.

[1] The KSH25 provides improved visual performance and wide angle distribution. This lens has an integral prism pattern designed so that prisms face the lamp cavity and still supply superior photometrics. Highly recommended for all high tech manufacturing environments. [2] For specific electronic ballast, specify brand and catalog number. [3] Not rated for 200 PSI hose down. [4] Consult your Cooper Lighting Representative for dimensional details.